PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Applicant:	Lutkus
Group Art Unit:	3677
Examiner:	Katherine W. Mitchell
Title:	CHROMATE FREE FLUOROPOLYMER COATED FASTENER INSERTS
Attorney Docket:	0275G-000915 (formerly 0275M-000915)

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Declaration Under 37 CFR § 1.132 of
William J. Lutkus

1. I am a co-inventor of the subject matter of the above captioned application. I have 19 years of experience in the field of industrial fasteners and hold 8 patents. My industry experience includes 10 years or more of activity on ASTM Committee B-18 and on SAE Standard Committee E-25.

2. I am also a co-inventor along with Mr. William Giannakakos of the subject matter U.S. 6,224,311 ("the Lutkus reference"), which is cited as prior art against the current application. Mr. Giannakakos is also a co-inventor of the current application. I am familiar with prosecution of the current application, including the Final Rejection mailed December 22, 2005, the Amendment After Final and Request for Continued Examination filed June 22, 2006, the Non-final Office Action filed August 11, 2006, and the Final Rejection mailed February 28, 2007.

3. The claims of the current application recite PTFE coatings for inserts that provide unexpected benefits in comparison to the prior art PTFE coatings of the "Lutkus reference". One of the advantages described in the specification is that when the chromate-free coatings, as currently claimed, are coated onto tangless inserts, the inserts perform better in a "prevailing torque test" than those coated with chromate inclusive fluoropolymer compositions. This is described for example at paragraph [0029] of the specification and elsewhere.

4. In earlier prosecution I offered another Declaration under § 1.132 providing the results of torque testing on tanged and tangless inserts according to the industry standard "prevailing torque test". I wish to incorporate the entire Declaration of August 4, 2006 (2006 Declaration) into this Declaration by reference. Attention is respectfully drawn to the 2006 Declaration for its background, discussion of the industry standard testing, and data and discussion showing the differences between the chromate coated and chromate free fluoropolymer coated fastener inserts.

5. My understanding is that, although the 2006 Declaration described differences between the claimed insert systems and the prior art, the Examiner considered the showing of differences inadequate to support the claims we are now making to chromate-free coated insert systems. I understand that one reason for failing to persuade the Examiner was the relatively minor amount of differences between the two coatings.

6. In the 2006 Declaration, the data for the tanged inserts showed modest differences, representing subtle but significant superiority of the chromate free coatings. I reported that based on my experience, the differences with the tangless inserts were even more noticeable than the data shown with the tanged. I pointed out that a) even small differences were commercially and technically significant and b) that I considered the differences to be significant. That is still my position.

7. Upon reviewing the latest communication from the Examiner, I decided to carry out additional testing on tangless inserts that could demonstrate the improved performance in the prevailing torque test to an even greater degree that would be persuasive to the Examiner

in removing the rejections to the claims. This testing has now been completed and is reported below.

8. For this testing we chose five different sizes of tangless inserts to evaluate the effect of different coatings on the prevailing torque test. We chose the most popular sizes of inserts; those are sizes 2-56, 4-40, 6-32, 8-32, and 10-32.

Tangless inserts (screw locking 1 1/2 Dia) from the same lot of inserts were sent for coating with chromate containing and chromate-free PTFE coatings in accordance with our shop standards designated with SH262 and SH254. To run the prevailing torque test, five pieces each of the coated inserts were installed into torque test blocks and tested in accordance with PP 3-OR, the industry standard "prevailing torque test".

9. The prevailing torque test provides that the torque test shall be run at room temperature without lubricant, without axial load, and using the bolt and hole specified. The screw lock insert shall be installed in a torque test nut or block using recommended installation tools. The test bolt shall be cleaned with vythene before assembly to remove any oil or other contaminants. The bolt shall be assembled finger tight in the insert up to the first grip coil.

The bolt shall then be "installed" and "removed" from the assembled insert for 15 complete cycles without axial load. The bolt shall be considered fully "installed" when three threads extend past the end of the grip coils. Removal shall be considered complete when the bolt has been unscrewed to its original finger tight position.

The test shall be run at a rate slow to yield a dependable measure of torque and avoid heating of the bolt. A new hole, bolt, and insert shall be used for each complete 15 cycle torque test.

The test bolts shall be class 3A cadmium plated steel. The test holes shall be made in 2024 T4 aluminum and tapped to dimensions shown in MS33537, Class 3B.

The paragraphs above contain quotations from the PP 3-OR engineering standard.

10. We tested five sizes of tangless inserts coated with two different coatings. One tested set of five had a chromate containing coating such as provided in the "Lutkus reference". The other set of five inserts had a chromate-free PTFE coating. The chromate free inserts are the subject of the current application.

11. Out of the five sizes of inserts tested, all five sizes coated with the chromate containing "prior art" coating experienced a high initial torque. In the case of three of the sizes tested, the initial torque was so high that it represented a failure in the prevailing torque test, the first cycle torque being over the maximum allowable.

    In contrast, the torque results of the inserts coated with the chromate-free containing PTFE showed much more consistent torque readings from the first to the fifteenth cycle. All five sizes tested passed the torque requirements of the prevailing torque test.

12. As noted above, whether or not a size of insert exhibited a formal "fail" in the test, all of the torque readings with the prior art coatings were higher than the torque readings with the chromate-free coatings of the current invention. This is seen in the following table summarizing the data. Average torque readings in inch-ounces or in inch-pounds are given for the five sizes of tangless inserts coated. The left hand of the table reports the results for the chromate-free coatings of the current invention. The right side of the table reports the results for chromate containing coatings of the prior art. Prior art inserts exhibit significantly higher torque in every cycle. In addition, the torque range, which is the difference between the highest and lowest torque exhibited in any cycle, is much greater with the prior art inserts than with those of the current invention. All of these torque difference are significant in the industry and show that the chromate-free coated inserts of the current invention perform better in the prevailing torque test.

Table I

	Coating Of Current Invention				Prior Art Coating				ALLOWABLE TORQUE	
	Average Torque Readings (IN-OZ)			TORQUE	Average Torque Readings (IN-OZ)			TORQUE	MAXIMUM	MINIMUM
SIZE	1st Cycle	7th Cycle	15th Cycle	RANGE	1st Cycle	7th Cycle	15th Cycle	RANGE	TORQUE	TORQUE
2-56	11.5	9.7	8.6	2.9	21.5	14.3	9.4	12.1	20	3
4-40	18.6	16.0	13.0	5.6	37.6	20.3	18.2	19.4	48	10
6-32	62.6	52.4	41.8	20.8	118.8	82.0	73.2	45.6	96	16
8-32 *	4.0	3.7	3.3	0.7	9.7	6.5	6.2	3.5	9	1.5
10-32*	7.6	6.3	5.9	1.7	11.7	8.8	8.3	3.4	13	2
	* Torque values for 8-32 & 10-32 size inserts are in Inch- Pounds							RED indicates failure		

13. Not only does the above table show a dramatic improvement in average torque readings throughout the fifteen cycles, for three of the five inserts tested, the initial torque was so high that it failed the prevailing torque test. Thus, the 2-56, 6-32, and 8-32 tested inserts all failed the prevailing torque test by virtue of out of spec torque measurements on the first cycle. And as seen from the table, even the two that passed the "prevailing torque test" (those being the 4-40, and 10-32) exhibited significantly higher torque.

14. Unlike in the 2006 Declaration, none of the test inserts reported here failed by virtue of movement or slippage of the inserts. Nevertheless, the data indicate a clear difference in the prevailing torque test between tangless inserts coated with the prior art versus the current invention coatings.

14. The new data reported here demonstrates that the coated inserts of the current application perform significantly better in the industry standard prevailing torque test than coated inserts of the prior art. As developed throughout prosecution and in my 2006 Declaration, this result is significant and was unexpected. The results presented here, from newly generated data, show if anything an even more dramatic improved performance in the prevailing torque test.

15. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that I make these statements with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted,

Dated: 8/27/2007

By: _____
William J. Lutkus

MAF/cg